

CLAIMS

What is claimed is:

1. A marking and guidance system for use during spinal fixation surgery,
5 comprising:

a guide tube configured to be inserted into a patient's back until a first end reaches an entry point on or near a vertebral bone of the patient's spinal column, wherein said guide tube comprises a hollow cylindrical channel along its longitudinal center axis;

10 a penetrating device configured to be positioned within the cylindrical channel of the guide tube and having a sharp tip configured to protrude outwardly from said first end of the guide tube so as to allow the first end of the guide tube to penetrate through the patient's back muscle and tissue and reach the vertebral bone at the entry point;

15 a marking pin configured to be inserted through the cylindrical channel of the guide tube, after removal of the penetrating device, until a first end of the marking pin having a sharp tip reaches the entry point; and

20 a pushing device configured to be inserted through the cylindrical channel of the guide tube and provide a driving force at a second end of the marking pin, opposite the first end, so as to drive and secure the first end of the marking pin into the vertebral bone, wherein the marking pin identifies the location of the entry point on the vertebral bone for subsequent implantation of a securing member of a spinal fixation device.

2. The marking and guidance system of claim 1 further comprising a cannulated awl having a tubular body configured to receive said second end of said marking pin within an axial channel of the tubular body, said cannulated awl further comprising boring teeth at 25 one end of the tubular body to bore a hole into said vertebral bone at said entry point centered around the marking pin, wherein said hole provides an entry hole for easier

implantation of said securing member.

3. The marking and guidance system of claim 1 further comprising a marking pin retrieving device having a tubular body with an internally threaded cylindrical wall at one end of the tubular body, wherein said second end of the marking pin comprises an externally threaded shaft configured to be received and secured within the internally threaded cylindrical wall, thereby allowing the retrieving device to pull the marking pin out of said vertebral bone.
- 10 4. The marking and guidance system of claim 1 wherein said securing member comprises a pedicle screw having a threaded shaft configured to be screw-driven into said vertebral bone located at a pedicle of the spinal column, said pedicle screw having a longitudinal axial channel within the thread shaft configured for receiving said second end and at least a portion of said marking pin therein.
- 15 5. A marking and guidance system for use during spinal fixation surgery, comprising means for marking a location of an entry point on a vertebral bone for subsequent implantation of a securing member of a spinal fixation device.
- 20 6. The marking and guidance system of claim 5 further comprising means for creating an entry hole for insertion of said securing member.
- 25 7. The marking and guidance system of claim 5 wherein said means for marking comprises at least one marking pin configured to be inserted into said vertebral bone at said entry point and wherein the marking and guidance system further comprises means for extracting said marking pin.

8. A method of marking and guiding the insertion of securing members of a spinal fixation device, comprising:

5 inserting a marking pin at or near a desired entry point on a vertebral bone of a patient's spinal column;

retracting tissue outwardly and away from said marking pin so as to provide a surgical field of view for insertion of a securing member of a spinal fixation device; and

inserting said securing member into said vertebral bone at said entry point marked by said marking pin.

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9. The method of claim 8 further comprising creating an enlarged entry hole centered about said marking pin for easier insertion of said securing member into said vertebral bone.

15 10. The method of claim 9 further comprising removing said marking pin prior to insertion of said securing member into said vertebral bone at said entry point.

11. The method of claim 8 wherein said securing member includes a shaft member having a longitudinal axial channel therein and said step of inserting said securing 20 member comprises positioning the securing member over said marking pin such that at least a portion of the marking pin is positioned within the longitudinal axial channel and thereafter driving the securing member into said vertebral bone such that the marking pin remains within the longitudinal axial channel.

25 12. A system for marking and guiding the insertion of securing members of a spinal fixation device, comprising:

means for inserting a marking pin at or near a desired entry point on a vertebral bone of a patient's spinal column;

means for retracting tissue outwardly and away from said marking pin so as to provide a surgical field of view for insertion of a securing member of a spinal fixation 5 device; and

means for inserting said securing member into said vertebral bone at said entry point marked by said marking pin.

13. The system of claim 12 further comprising means for creating an enlarged entry 10 hole centered about said marking pin for easier insertion of said securing member into said vertebral bone.

14. The method of claim 13 further comprising means for removing said marking pin prior to insertion of said securing member into said vertebral bone at said entry point.

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